CLAIMS

1. Gas supply system (3) for a side blowing and/or bottom blowing metallurgical furnace with at least one tuyere (5), which is mounted in the side wall and/or in the bottom of the furnace, wherein gas is conveyed through a line (6) of the gas supply system to the tuyere (5) and through the tuyere to the interior of the metallurgical furnace and emerges there in the form of bubbles, characterized by the fact that the gas supply system (3) has an inflow restrictor (7), which is assigned to the tuyere (5) or is positioned upstream of the tuyere (5) and reduces or interrupts the gas supply to the interior of the furnace at equal intervals of time.

2. Gas supply system in accordance with Claim 1, characterized by the fact that the frequency with which the intake restrictor (7) is switched between an open position for unimpeded gas supply and a partially or completely closed position for reduced or interrupted gas supply is greater than 5 Hz.

3. Gas supply system in accordance with Claim 1 or Claim 2, characterized by the fact that the inflow restrictor (7) is installed at the mouth of the tuyere, outside the metallurgical furnace.

4. Gas supply system in accordance with any of Claims 1 to 3, characterized by the fact that the inflow restrictor (7) comprises a solenoid valve or a servovalve.

5. Gas supply system in accordance with any of Claims 1 to 4, characterized by the fact that the system (3) has bypass lines (8) that are assigned to the respective gas lines (6) in which the inflow restrictors (7) are integrated and that each bypass line (8) has a shutoff device (9).

6. Gas supply system in accordance with any of Claims 1 to 5, characterized by the fact that it has a control unit (10) for the inflow restrictors (7) for coordinating the in-phase or out-of-phase operation of at least two tuyeres (5).

7. Method for operating a gas supply system for a side blowing and/or bottom blowing metallurgical furnace with at least one tuyere (5), which is mounted in the side wall and/or in the bottom of the furnace, wherein gas is conveyed through a line (6) of the gas supply system (3) and through the tuyere (5) to the interior of the metallurgical furnace and emerges there in the form of bubbles, characterized by the fact that the flow of gas into the interior of the furnace is periodically reduced or interrupted at frequencies greater than 5 Hz.

Figure 2. Pulsating pressures measured at measuring point V1, without valve.

KEY:

Wechseldruck in bar = pulsating pressure in bars

Zeit in ms = time in ms

Runddüse Ø 6 mm = circular nozzle Ø 6 mm

Düsenneigung: 0° = nozzle inclination: 0°

Figure 3. Pulsating pressures measured at measuring point V1, pulsation frequency adjusted to 7 Hz.

KEY:

Wechseldruck in bar = pulsating pressure in bars

Zeit in ms = time in ms

Runddüse Ø 6 mm = circular nozzle Ø 6 mm

Düsenneigung: 0° = nozzle inclination: 0°

Pulsation durch Magnetventil = pulsation by solenoid valve

Figure 4. Pulsating pressures measured at measuring point V1, pulsation frequency adjusted to 20 Hz.

KEY:

Wechseldruck in bar = pulsating pressure in bars

Zeit in ms = time in ms

Runddüse Ø 6 mm = circular nozzle Ø 6 mm

Düsenneigung: 0° = nozzle inclination: 0°

Pulsation durch Servoventil = pulsation by servovalve

Figure 6.

KEY:

Frequenz (Zeit/min) = frequency (time/min)

Blasdruck (kg/cm^2) = blowing pressure (kg/cm^2)

Frequenz = frequency

Kum. Strahlimpuls = cumulative jet pulse

Kumuliertes Strahlimpuls = cumulative jet pulse

Impuls = pulse

Querschnittsfläche = cross-sectional area